The Economic Value of New Jersey's Historic Environment

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New Jersey Department of Environmental Protection
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THE ECONOMIC VALUE OF NEW JERSEY'S HISTORIC ENVIRONMENT

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Prepared By:
Jorge Reyes, Research Scientist

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
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EXECUTIVE SUMMARY

Background

New Jersey has an especially rich historical legacy, and the State's historic sites are vital to preserving and communicating that legacy. This study analyzes the economic benefits generated by the historic environment of New Jersey, specifically the 50 State Historic Sites (HS) that form part of the State Park system under the stewardship of the Department of Environmental Protection.

Methodology/ Types of Economic Values

Two broad types of economic value are relevant to the State's historic resources: *use values* and *non-use* or *passive values*. Use value, which requires use of the resource, is further subdivided into "consumptive" and "non-consumptive" use values. Consumptive use value derives from goods that can be extracted from the site while non-consumptive use value derives from the services that a site provides. Non-use or passive use values are values one can obtain without being present at or near a particular site. These can include the value of future use by others (bequest values) and other intrinsic values that accrue even if the individual does not visit the resource (existence values).

It is recognized that historic resources are heavily invested with highly important, non-economic values but since this is an economic study these values are not explicitly considered here. This is not to denigrate such non-economic values but to recognize that economic techniques are not well suited to measuring them, except insofar as they generate goods or services whose value *can* be assessed with the tools of economics.

Non-Consumptive Use Value

NJ State Historic Sites potentially have six types of non-consumptive use value: a) recreation/heritage tourism and the "spin-off" activity that such tourism generates; b) property value enhancement; c) archeological value; d) economic benefits from agency management expenditures; e) economic benefits from construction expenditures; and f) public education and interpretation.

- Heritage Tourism- While only a fraction of the State Park Service revenues are derived from State Historic Sites, it is estimated that about $65.4 million is spent annually in NJ on goods and services related to HS visits. Based on this expenditure, total money generated (a standard benefits measure in this field) amounts to $286.6 million annually (indicating the substantial economic impact of heritage tourism). The present value of this benefit is about $4 billion, based on an illustrative 25-year time period and a 5% discount rate. An estimated 3,922 jobs are also created.

- Impact on Property Values- There is no published NJ-specific study that deals with the impact of historic sites on property values, but numerous studies from other states show positive impacts on the value of properties located near historic places and districts. Based on a crude analysis, NJ data indicates a moderate positive correlation between proximity to historical places and both home property values and open space values (all

correlation coefficients above 0.5). This implies that historic sites have a positive impact on property values in surrounding areas; further research would be necessary to determine the direction of causality. The aggregate land value of the sites studied here (based on Green Acres open space acquisition values) would amount to almost $113 million. The amount is relatively small compared to that of State Parks and Forests due to the small size of most areas occupied by State HS.

- Archeological Value- With 92,000 historic objects/archeological artifacts contained in the museum collections of the State HS, this value is especially significant. Using a legally defined limit in the federal Archeological Resources Protection Act (ARPA) as a minimum threshold, such collections would have a monetary value for ARPA enforcement purposes of at least $46 million, a very conservative amount given the potentially much higher information value of the artifacts.

- Historic Site Management Expenditures- Total money generated per year is estimated to be about $9.2 million with a present value of about $130.0 million (25 year time period, 5% discount rate).

- Historic Site Construction Expenditures- Total money generated annually is $845,000 with a present value of $11.9 million (25 year time period, 5% discount rate).

- Public Education and Scientific Benefits- This is a distinct and identifiable benefit but difficult to measure. Therefore, no attempt has been made to quantify this benefit.

Passive Use Value

The management of land for historic conservation generates passive use values, e.g., existence and bequest values. In the absence of NJ-specific studies and data, a benefits transfer approach was used to obtain an order of magnitude estimate of such values. The aggregate willingness to pay (WTP) for NJ households is estimated at about $8.3 million annually, which translates to a present value of $116.4 million (25 year time period, 5% discount rate).

Conclusion/Recommendations

The economic benefits from the 50 State Historic Sites analyzed in this study have an estimated value of over $300 million a year. The sites generate value in a number of ways; the largest single economic impact derives from heritage tourism, suggesting that the sites may have unrealized economic potential. This implies a need to determine whether sufficient investments are being made to realize this potential. Further, given the large collection of historic objects and archeological artifacts within the sites and the archeologically significant features of the sites themselves, the archeological value of the State HS should be assessed via further research.

The Economic Value of New Jersey's Historic Environment

I. Purpose and Scope of the Study

The full economic value of a community's historic heritage is generally considered to be incalculable, but attempts have been made to measure the value of some of the more important benefits of that heritage. The historic environment is an irreplaceable asset representing hundreds of years of human investment and environmental capital. New Jersey has an especially a rich historical legacy, and the State's historic sites are vital to preserving and communicating that legacy.

The purpose of this study is to develop an analysis of the economic benefits generated by New Jersey's historic environment, specifically the historic sites that form part of the State park system under the stewardship of the New Jersey Department of Environmental Protection[1]. Although these State historic sites form a major part of NJ's historic resources, there are other important elements of the historic environment (e.g., individual historic structures [buildings, homes, factories], traditional use areas, and historic districts which are federal, local government or privately owned) that are not included in this analysis.

The study will assemble results from existing studies relevant to NJ historic sites and present some new analyses not previously considered with respect to such sites. The study will cover mainly the 50 historic sites[2] and monuments under the jurisdiction of NJ DEP.

II. Background

Currently, responsibility for New Jersey's historic resources is distributed among five separate departments within State government. Most of the state's publicly-owned historic sites are under the supervision of the NJ Department of Environmental Protection specifically through the NJ Division of Parks and Forestry. The other departments involved with historic resources are: (1) the Department of State under which the NJ Historical Commission, NJ State Museum, NJ State Library, and Division of Archives and Records Management operate; (2) the Department of Treasury which manages two historic sites: Old Barracks Museum and the War Memorial Auditorium both in Trenton; (3) the New Jersey Commerce and Economic Growth Commission, whose Division of Travel and Tourism publicizes historic sites and programs; and (4) the Department of Community Affairs which is responsible for *Main Street NJ,* a program that uses historic preservation as a tool for economic revitalization of historic downtown areas.

The units within or associated with NJ DEP that are concerned with historic resources include the Historic Preservation Office, NJ Historic Trust, Historic Sites Review Board, NJ Historic Sites Council, and State Park Service[3] which manages 50 state-owned historic sites and monuments.

[1] A separate study covered the state parks and forests (P&F) which are also under the jurisdiction of NJ DEP.

[2] Figure provided by Beverly Weaver, Office of Historic Sites, NJ Division of Parks and Forestry. Recent press announcements indicate new additions to the State Historic Sites but these are not yet included in this study.

[3] The NJ Office of Historic Sites, located within the State Park Service, oversees the statewide collections management program, provides technical assistance, develops historic resource planning documents and exhibit materials, conducts research, and provides staff training in the administration of the state-owned historic sites and

All these 50 sites are listed on the NJ and National Registers of Historic Places. Eight (8) sites are designated as National Historic Landmarks.

The 50 historic sites maintained by the NJ Division of Parks and Forestry include more than 315 historic buildings and structures covering 1,210,962 square feet. The museum collections at these sites contain over 24,000 historic objects and 68,000 archeological artifacts.

Twenty-two of the 50 historic sites are open and interpreted to the public year round. The NJ Division of Parks and Forestry currently employs 30 full-time historic site staff, four of which are deployed in the regional offices. There is one full-time professional museum staff (but no administrative support staff) in Trenton, NJ, to provide technical assistance, planning and program development to the field offices.

It is estimated that almost a million people visit these historic sites every year. Table 1 shows the estimated number of visitors for historic sites and related areas based on attendance data for the period 1999 to 2002 provided by the NJ Division of Parks and Forestry. Table 2 lists the New Jersey state-owned historic sites.

III. Methodology

Heritage issues share many characteristics with problems encountered in environmental economics. Like ecosystem services, a number of the services provided by heritage sites may not enter markets or may do so only indirectly and imperfectly; similarly, many of the benefits of such sites are wholly intangible. Furthermore, the nature of the benefits provided by historic sites is conceptually similar to those provided by national parks and other environmental assets. It makes little or no technical difference to the valuation problem whether aesthetic benefits are derived from buildings or trees and whether recreation benefits are derived from museum visits or fishing.

Because of this close parallel, there are many techniques that can be used to measure at least some of the benefits of cultural heritage. Those techniques may not capture all of the benefits, but for many purposes they are sufficient in that they capture enough of the benefits to allow an informed decision on issues or projects related to heritage assets. Even when some or all of the benefits cannot be quantified, economic analysis can be combined with qualitative assessment to help support more informed decisions.

When we ask what the value of a historic or cultural heritage site is, we are generally asking one of two related but different questions. One, we might be asking what the value of the *entire site* is as an *asset*. In effect, we are asking how much worse off we would be if the site vanished tomorrow. This is the question we would ask if we were basically interested in estimating our state's "wealth", of which cultural heritage is a component. The other question we might be asking is what are the benefits or costs of actions that change the cultural heritage site in specified ways. This is the question we would ask if we were considering undertaking a project which would improve (or which might damage) the site. In this context, the key issue is not the overall value of the site but the *change* in that value resulting from the project. Both questions are important but the first question is more directly relevant to the present study.

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their museum collections. The related Historic Preservation Office provides expertise in a variety of fields essential to preserving historic resources.

Measures of economic value

The conventional measures of economic value are *willingness to pay* (WTP) and *willingness to accept* (WTA). An individual's WTP for a commodity is how much the individual would be willing to pay to have the commodity available. Alternatively, an individual's WTA for a commodity is how much the individual would have to be paid to accept the removal of the non-market commodity. In theory the two measures should be the same, but in fact it has been found that they often differ because of consumers' income: one's WTP is bounded by one's income, while one's WTA is not. Moreover, consumers may have a WTP (e.g., for historic resources) that is often greater than what they currently pay in terms of time and money.

As between the two metrics, WTA is the more appropriate measure of value if the commodity currently exists and/or the consumer has a right to its existence. WTP is the more appropriate measure if the commodity does not currently exist and/or the consumer has no right to its existence. WTP is typically easier to estimate than WTA. Thus, most valuation studies estimate WTP. The value of a commodity to a group is generally taken by economists to be the sum of the values to the individuals in the group[4]. In this study, the value of historic sites is viewed from the perspective of the state residents as a whole.

The main reason to value historic resources is to determine whether preservation or maintenance of historic site is appropriate or, more precisely, how much it is worth spending on such preservation. A historic resource should be preserved if the present value of preservation is greater than the cost. The other reason to value historic resources is that the valuation estimates can be used to help determine how restoration and preservation, when appropriate, should be funded. Should site preservation and historic resource restoration be funded with user fees and/or property taxes, general tax revenues, voluntary contributions, or some combination of these sources?

Finally, in terms of valuation theory, historic resources in the form of historic sites are resources that reside at specific locations and that are not easily moved. Examples are statues, ruins, streets, roads, and even towns and cities. These resources are, by definition, old, although the meaning of "old" often depends on the specific resource being evaluated.

It should be noted that since this is an economic study, non-economic values are not explicitly considered. This is not to denigrate such non-economic values but to recognize that economic techniques are not well suited to measuring them, except insofar as they generate goods or services whose value *can* be assessed with the tools of economics.

Methods to estimate use values

The use value of a good or service is the value that an individual obtains from using the good or service. Individuals may also derive non-use value, e.g., from simply knowing that a historic site

[4] The group can be residents of a township, a region, a state, a country, or the world, and it can include members of future generations.

is being preserved. Economists have developed a number of techniques for estimating use values for non-marketed goods, of which the most relevant are described below.

1. Travel-cost models

Travel cost models estimate the use value of a non-marketed asset by observing behavior and inferring value from that behavior. Specifically, the travel-cost method estimates the value consumers assign to historic sites based on the amount they are willing to spend to get to those sites and the characteristics of the sites. Travel-cost models are most applicable when enjoying the site involves significant travel.

2. Hedonic property value models

In environmental economics, amenities are features of an asset or its environs that enhance the value of the asset, e.g., scenic views. Such amenities clearly affect property values and/or wages, although historic or cultural amenities affect property values more than they do wage rates. There are a large number of hedonic property value studies that use statistical techniques to show that property values are significantly affected by their distance from site-specific amenities. Those studies are based on the idea that amenities are capitalized into property values. As a secondary effect, property values influence both long and short-term rental rates. The extent to which historic amenities have been capitalized into property values in NJ depends on how competitive and active is the market for property.

There is some relationship between travel-cost methods and hedonic methods. In some cases, travel costs and property values are two sides of the same coin, since residing close to a site reduces the cost of visiting the site. Travel and residential location are substitutes that are jointly determined. Travel cost models provide appropriate measures of benefits of sites to non-locals or visitors while hedonic property value studies provide appropriate measures of benefits of sites to locals or residents. In this sense, they can also complement each other.

3. Experimental markets

Another technique for estimating use values is to create experimental markets, e.g., by experimenting with entrance fees as a method of determining WTP above and beyond the current costs of the trip.

The techniques described above are called *revealed preference* techniques. That is, they are techniques that infer value from observed behavior, based on the assumption that the individual's behavior reveals his or her economic values. Alternatively, an individual's *stated preferences* are the individual's description of his or her preferences. Examples of stated preference methods that are particularly useful in estimating use values of historic sites are described below.

4. Contingent ranking

The contingent ranking method presents each sampled individual with a set or sets of hypothetical sites and asks the individual to either select the best site in each set or to rank the sites. The hypothetical sites are defined in terms of cost and other specified characteristics. These costs and characteristics are systematically varied across the sites in the individual's hypothetical "choice set." Data are also collected on the socioeconomic characteristics of the individuals sampled. The contingent ranking data are then incorporated into a model of consumer preferences to determine how individuals value sites as a function of the site's characteristics. Contingent ranking is a potentially powerful tool in the estimation of use benefits from historic sites, especially for identifying which features of a site are most important to visitors and for identifying the types of tradeoffs that individuals consider in deciding whether to visit any historic site or which site to visit.

5. Contingent valuation

In this method, an individual is asked to state the value he or she places on non-market commodities. The question is hypothetical, since no money is collected even if the individual states a positive WTP. Contingent valuation estimates both use and non-use (passive use) values. Contingent valuation questions can be designed to value historic sites, but only with great care. Contingent valuation studies require much scoping[5] and the survey questions need multiple rounds of pre-testing.

Benefits transfer

In practice, as time and resources available do not usually permit primary research efforts to be undertaken (using methods described above), valuations are often based on the "benefits transfer" approach. This approach applies the results of previous studies of a particular public good (such as a historic site) in another geographic area (e.g., another state) to the geographic area of interest. Benefits transfer is not a valuation method *per se* but rather a way of extending the usefulness of an original valuation study to predict values in a different context. While the method is not

[5] Contingent valuation requires much scoping for three reasons. First, the scenario to be valued needs to be clearly specified, since a vaguely specified scenario would be open to so much interpretation that responses would be basically meaningless. Second, the scenario to be valued needs to be within the realm of possibility, because if a scenario is unrealistic, individuals will tend to state a zero WTP, not necessarily because they do not value the scenario, but simply because they feel the scenario cannot be achieved at any price. Third, a critical part of the contingent valuation question is the payment vehicle (specified form of payment) which could take various forms (e.g., one-time tax, price increase or one-time payment to a private organization). Persons who value restoration but dislike taxes will likely state a zero WTP for restoration. This is known as rejection of the payment scenario and is common in the U.S.

without its critics, it is often the only practical way to assess the value of non-marketed goods such as historic sites.

IV. Types of Historic Site Values

General types of economic values

Heritage or historic sites differ from other sites because of their historical, cultural, social, and/or aesthetic significance. Historic sites and related projects have a wide range of economic effects. Some of these will be related to the heritage dimension of the site, others will not, and others will be a mix of both. Environmental economists generally attempt to take a comprehensive look at value based on the concept of *total economic value* (Pearce and Warford, 1993). Total economic value is usually broken down into a number of categories of value which makes valuation more tractable and intelligible.

In relation to historic resources, it is important to distinguish between *use values* and *passive use (or nonuse) values*. Use value requires use of the resource. For instance, the use benefits from the Trenton Battle Monument can only be captured if one visits the monument. Use value is further broken down into "consumptive use" and "non-consumptive use". Consumptive[6] use value (e.g., deer killed by hunters) derives from goods that can be extracted from the site. This category of value is generally the easiest to measure since it involves observable quantities of products whose prices can usually also be observed. However, this category appears to be of little relevance to heritage sites and will not be discussed further.

Non-consumptive use value derives from the services that a site provides. These services have value but do not require any good to be harvested. The 'quantities' of the services being provided are often hard to measure and many of these services do not enter the market at all. While difficult to measure, this category of use value is very relevant to many aspects of heritage sites. Among the non-consumptive use values generally considered in environmental economics, those which are likely to have the most relevance to heritage sites are aesthetic and recreational value.

- Aesthetic effects differ from non-use values because they require a sensory experience. Aesthetic benefits are often closely linked to physical ones.

- Recreational benefits provided by a site are generally considered together as a single source of value although, in fact, they are a result of a number of different services which a site might provide, e.g., picnic benches, walking trails, etc. The extent of recreational benefits depends on the nature, quantity, and quality of these services.

The terms passive use values and nonuse values are often used interchangeably. Passive use values for a site-specific resource are values one can obtain without being present at, or near, the site. Passive values can include values for use by others in the future (bequest values) and other intrinsic values that accrue even if the individual does not visit the resource (existence values).

[6] It should be noted that in the museum field, the term consumptive use has a special definition. According to B. Weaver of the NJ Office of Historic Sites: 'Every time we tour a person through a historic building, we are consumptively using that property. We as stewards must guard against this. In a way, ...it can impact the economic value since unlimited use of the structure deteriorates or destroys it.'

Non-use value is the most difficult type of value to estimate, since in most cases it is not, by definition, reflected in people's behavior and is thus wholly unobservable; as such, it can only be estimated using contingent ranking or contingent valuation techniques. Nonetheless, this category of value has obvious relevance for heritage sites.

Historic resources can have both use value and passive use value. One can obtain satisfaction both from visiting historic sites and from knowing that such sites exist. The value of some sites will consist primarily of use value, while the value of other sites will comprise mainly passive use values. Use values are most significant for popular tourist sites and/or sites near which people like to live.

Use affects the characteristics of a site, so current use can reduce future use benefits. For example, many historic buildings, parks and wilderness areas are being degraded by their visitors through careless/inappropriate use or lack of proper management. Current use can also reduce current and future passive use benefits.

It should also be noted that the value of the historic resources in a community or region is not simply the sum of the values of all of its individual historic sites. For example, a historic village has a value greater than the sum of the values of its individual buildings, roads, and associated artifacts. Similarly, a historic site located in close proximity to other such sites (or to popular non-historic attractions) may have a higher value than the same site located far from other visitor attractions.

V. Non-Consumptive Use Value

NJ historic sites potentially have six types of non-consumptive use value: a) recreation/ heritage tourism and the "spin-off" activity that such tourism generates, b) property value enhancement, c) archeological value, d) economic benefits from agency expenditures, e) economic benefits from construction expenditures, and f) public education and interpretation.

A) Heritage Tourism

Well-maintained historic places including historic districts (historic villages, streets, and town centers) help to attract visitors/tourists to shops, restaurants and other local businesses. Trips to visit historic landscapes and monuments lead to indirect benefits to the local economy through spending in markets, shops, hotels and restaurants. In 2002, Partners in Tourism, a collaboration of eight national associations and four federal agencies, commissioned the Travel Industry Association of America to include in the National Travel Survey questions related to historic/cultural travel. Visiting a historic community or building was the most popular cultural activity listed in the survey, which found that nearly 93 million Americans included at least one cultural arts, heritage or historic activity or event while traveling. Nearly one-third (32%) added extra time to their trip specifically for this purpose. Following the national trend, New Jersey's historic resources also play a significant role in encouraging tourism, one of the state's largest industries.

Based on calculations using NJ State Park Service (NJSPS 2002) attendance data for the period 1999 to 2002, visitors to state historic sites number almost 1 million annually (Table 1). The most

obvious direct benefit generated from their visits is park fees. The reported revenues of the NJSPS from 1994 to 2002 from use of the State Parks (SP), Forests (SF) and Historic Sites (HS) averaged about $7 million per year. However, most of the sites are not located within a State Park or Forest and therefore have no entrance fees.

As mentioned earlier, visitors/tourists spend money on goods related to historic site visits. Using figures on expenditures per trip from a previous study (CUPR/Rutgers 1997) and the estimated number of HS visitors per year, about $65 million annually is spent in NJ on goods and services related to HS visits (Table 3). This initial expenditure generates indirect, additional sales benefits ($130.7 million) which, in turn, creates new jobs (3,922) and corresponding salaries ($148.0 million), and both sales and income tax revenues ($12.5 million). (The income tax revenues, however, are part of the sales revenues and wage income and should not be double-counted.) Total money generated (a standard benefits measure in this field) amounts to $286.6 million annually, indicating the substantial economic impact of heritage tourism. The present value of this benefit is about $4 billion, based on an illustrative 25-year time period and a 5% discount rate.

B) Impact on Property Values

While there is no NJ-specific study that deals with the impact of state historic sites on property values, numerous studies from other states show consistent economic patterns for most historic places and districts in the U.S. The following brief examples illustrate the general patterns.

1. In Virginia, property values of historic buildings and sites in diverse communities significantly outperform the appreciation rates for non-historic properties (Rypkema 1995). In Richmond, for example, between 1980 and 1990, the total assessed value for a local historic district increased by 245% from $23.1MM to $56.8MM, while citywide the aggregate value of real estate increased by 8.9% (Rypkema 1995).

2. In Galveston, Texas, information was obtained on sales transacted over a period of six months in two residential historic districts and in a nearby non-historic district to determine an average sales price per area. The results were compared to early 1970s data. Between 1975 and 1991, prices increased by an average 440% in one historic district and by 165% in the other historic district. In contrast, prices in the non-historic neighborhood increased over the same period by an average 80% (Government Finance Research Center 1991).

3. In Athens, Georgia, two areas that are listed on the National Register for Historic Places and also locally designated demonstrated a 47.75% increase in property tax assessment values between 1976 and 1996. Three nearby unlisted and non-designated neighborhoods showed an average increase in value of 33.87%. Thus, those areas registered both on the national and local levels had a robust increase in values way above that of the unlisted neighborhoods (Athens-Clarke County Planning Department, 1996).

g) In Indiana, over a recent period of 15 years, the values of properties in the study areas steadily appreciated after the creation of historic [residential][7] districts (American Planning Association 1998).

Our literature survey did not yield any similar New Jersey-specific neighborhood-level hedonic price studies that capture in detail the property value appreciation impact of historic sites and districts. However, simple correlation of the number of historic places in New Jersey counties with corresponding open space acquisition values (Green Acres) and home property values (Table 4) gives some indication of the possible effects. As Table 5 shows, there is a moderate correlation between the different categories of historical places and both home property values and open space values, with all of the correlation coefficients above 0.5. This implies that historic sites have a positive impact on the property values in the surrounding areas, although further research would be necessary to definitively establish the impact and measure the magnitude.

As in the Economic Value of NJ's State Parks and Forests (P&F) study, the land value of the historic sites can be estimated using the most recent Green Acres Program open space acquisition values by county and regions[8] (Table 6). Excluding one historic site that is located outside the state[9] , the aggregate land value of 49 state-owned and NJDEP-administered historic sites would amount to almost $113 million. The amount is relatively small due to small areas occupied by State HS. In terms of the 4 regional divisions of NJ, the locations of the 49 historic sites are almost evenly distributed. The historic sites in the South Central/Delaware region and the Highlands/Skylands region have relatively higher land values.

[7] There are several types of historic districts: residential, industrial, or agricultural.
[8] New Jersey is divided geographically into regions for tourism purposes.
[9] One site is located outside the state (i.e., Monocacy in Maryland).

C) Archeological Value

A special category of value that is almost unique to historic sites is "archeological value." For the New Jersey state-owned historic sites, this is especially significant because 92,000 historic objects/archeological artifacts are currently contained in the museum collections of the sites.

The concept of "archeological value" is statutorily established by the federal Archeological Resources Protection Act (ARPA). The ARPA Uniform Regulations legally prescribes the manner by which this value will be determined:

> …the archeological value of any resource involved in a violation [of ARPA] shall be the value of the information associated with the archeological resource[10]. This value shall be appraised in terms of the costs of the retrieval of the scientific information that would have been obtainable prior to the violation. These costs may include, but need not be limited to, the cost of preparing a research design, conducting field work, carrying out laboratory analysis, and preparing reports [such] as would be necessary to realize the information potential (ARPA Uniform Regulations Section 14(a)).

The assessment of this value is not particularly difficult because professional archeologists routinely determine the costs of retrieval of scientific information ("archeological value") in response to requests for proposals to conduct archeological excavations on a contract basis. In this regard, archeology is no different than any other discipline which projects the costs to conduct work which qualified practitioners of that discipline are proposing to undertake.

The ARPA prescribes penalties in the form of fines for damage or destruction of archeological resources which could be used to define a minimum value for the archeological holdings within the State-owned historic sites. The fines for violations of the prohibitions in ARPA are not to exceed $10,000 if the archeological value of the resources involved and the cost of restoration and repair of such resources are less than $500. Using this legally defined limit ($500) as a minimum threshold, the 92,000 artifacts in the current museum holdings of the State's historic sites would have a monetary value for ARPA enforcement purposes of at least $46 million, a very conservative amount given the potentially much higher information value of the artifacts.

D) Historic Site Management Expenditures

As in the case of state parks and forests, expenditures for the operation and maintenance of state-owned historic sites generate economic effects in terms of additional sales, tax revenues, and job creation. The budget for management of NJ state-owned historic sites is administratively part of the budget for state parks and forests. There were no separate management expenditures data available for State Historic Sites except for salaries. However, the share of personal services in the State Park Service operating budget from 1999 to 2003 can be calculated (average of 63%) and the average share of the non-personnel expenses can be inferred (estimated at 37%). These were used here to estimate the average annual agency management expenditures and consequently the economic effects of historic site management expenditures (Table 7). Total money generated per year based on the estimated average annual budget of the State Park Service for State-owned

[10] In the economic literature this kind of value could be classified as "quasi-option value".

historic sites in NJ would be about $9.2 million with a present value of more than $130 million (25 year time period, 5% discount rate).

E) Historic Site Construction Expenditures

In the same manner as operating and maintenance spending, capital improvement or construction expenditures for historic sites generate economic effects in terms of additional sales, tax revenues, and creation of jobs both permanent and temporary. According to the 1997 CUPR study cited earlier, capital expenditures for NJ historic sites and organizations tend to be "lumpy" or variable from year to year. The survey results on capital expenditures included in the CUPR study were obtained by asking respondents to provide their average annual expenditures over the previous five years (to obtain a "non-lumpy" figure). For public respondents, the survey average and median capital expenditures were $146,206 and $42,500, respectively, and the survey total was $2.3MM. The survey average (adjusted for inflation) was used to estimate the economic effects of historic site capital improvement expenditures (Table 8). Total money generated per year based on the average capital expenditures of public historic sites and organizations would be around $845,000 with a present value of $11.9 million (25 year time period, 5% discount rate).

F) Public Education and Scientific Benefits

By preserving and conveying information about past cultures and environments, historic sites can help inform both researchers and the public. This is a distinct and identifiable benefit, but it is obviously one that is difficult to quantify or assign a value to, and no attempt has been made to quantify its value for NJ. It should be noted though that almost half (22) of the sites are open and interpreted to the public on a year-round basis. Also, according to the Association of American Museums (AAM), nationally 88% of museums offer programs for K-12 students. In 1997, museums spent $194 million on student programs and provided 3.9 million instructional hours to schools (AAM Fact Sheet).

VI. Passive Use Values

For many New Jersey residents and visitors, historic (including archeological) conservation may be regarded as important for its own sake, regardless of whether or not it provides more direct benefits of the kinds described in the previous section. As in the case of rare, endangered, or threatened species, the management of land for historic conservation may therefore generate "non-use" or "passive" values. For instance, some people may wish to see historic sites, objects or archeological artifacts conserved for the benefit of future generations (bequest value), or as a sign of respect to the original creators of these monuments and buildings (memorial value). While close parallels can be drawn between passive use values for historical resources/archeology and for animal species, different motivations may exist. The preservation value of an endangered or threatened species could be strongly related to a concern for other living species (pure existence value), whereas preservation of historic sites for their own sake may reflect general societal importance given to historic preservation as a social good, i.e.,concern for things that tell the story (and lessons) of a culture.

Historical or archeological topics are only beginning to appear in the literature on valuation on non-marketed goods. The few studies that exist have focused on sites of international significance. Examples include: 1) Pollicino and Maddison (2002) which valued the impacts of air pollution on Lincoln Cathedral in Great Britain; 2) Carson *et al* (2002) which estimated the economic benefits of rehabilitating the Fes Medina in Morocco; and 3) Riganti and Willis (2002) which conducted a valuation study of Roman imperial remains. Historic and archeological monuments in state parks and forests tend to be of regional or at most national significance rather than major international attractions and thus have little in common with the subjects described by these valuation studies.

In order to obtain an idea of the existence or bequest value of historic places, an estimate of the general publics' willingness to pay (WTP) for the protection/conservation of historic/archeological sites[11] can be derived from existing studies that have been done elsewhere (using benefits transfer logic). In the literature survey conducted for this report, no U.S. study that dealt with this issue was found. However, outside the U.S. and particularly in Great Britain, at least two studies could be considered of particular relevance. Hanley *et al.* (1998) generated an estimate for the archeological component of an environmentally sensitive area management program in Scotland. Another study (Garrod and Willis, 1995) provides an estimate of WTP for the entire environmentally sensitive area management program in England and Wales. This latter study, while lacking specific information on WTP for archeological management, sets an appropriate basis for estimating WTP for a much more extensive and geographically representative area. Further, the study used three categories of park/forest visitor: never visited (non-user), visited previously, and visited in the current year. The WTP of the non-user would correspond to existence or bequest value.

Using a benefits transfer approach and combining the two studies cited above, one can argue that it is possible to estimate a total value for the management of historic/archeological resource located in the State's parks and forests. Based on the WTP value (for non-user category) obtained from the two studies in Great Britain, the aggregate WTP for NJ households would be about $8.2 million annually (Table 9). This translates to a present value of $116.4 million (5% discount rate, 25 years). Since this estimate assumes general similarity of conditions (including cultural emphases on history) between the original study area and NJ, it should be interpreted cautiously until NJ-specific empirical research is actually undertaken. However, even with this caveat the analysis suggests the order of magnitude of the non-use value of historic/archeological site conservation.

VII. Summary of Benefits Estimates

The estimated values for the types of benefits identified above are summarized below. Total annual benefits amount to $313 million with a present value of $4.4 billion:

[11] These are sites that are under state park and forest management system. The approach does not attempt to value the historic site itself but rather the protection service provided by parks and forests (within which historic sites are located) managed under approved guidelines.

Economic Benefits from New Jersey State-Owned Historic Sites (HS)			
Value Type	Measure Used	Annual Value ($MM)	Present Value ($MM)
Non-Consumptive Uses			
A. Heritage Tourism	Revenue from fees	Not available[12]	n/a
	Total money generated	286.6	4,039.4
B. Impact on Property Values	Open space acquisition value	8.0	112.9
C. Archeological Value	Value of artifacts & museum collections	Minimum of 3.3 (not incl. in total)	Minimum of 46.0 (not incl. in total)
D. Management of Historic Sites	Total money generated	9.2	130.0
E. Historic Site-Related Construction	Total money generated	0.8	11.9
F. Public Education & Scientific Value	Value of interpretive programs & facilities	Not estimated	Not estimated
Passive or Non-Use Value			
Existence & bequest value	Non-user WTP for site protection	8.3	116.4
TOTAL		**312.9**	**4,410.6**

In addition, the economic activity summarized above can be credited with the creation of 4,060 permanent jobs and an unknown number of temporary construction jobs.

VIII. Costs of Historic Site Conservation

A complete economic analysis would include the costs associated with maintaining State Historic Sites. Two types of costs are involved in the protection and conservation of historic sites, namely direct costs and opportunity costs. **Direct costs**[13] include capital expenditures, development and maintenance of facilities, and all recurrent management and administration costs including salaries of personnel directly assigned to State Historic Sites (Table 10). These costs have been considered as a source of economic benefits (Table 7), but they also represent costs. **Opportunity Costs** are the benefits foregone as a result of the decision to maintain an area as historic site, instead of converting it to another use. These costs have not been estimated in this study as the data required on the costs and benefits of site conversion are not readily available.

IX. Conclusions/Recommendations

The study has identified a number of economic benefits generated by State Historic Sites with estimated total benefits from non-consumptive uses of over $300 million per year. These sites also generate significant passive or non-use values, although the non-consumptive use values appear to greatly exceed them.

[12] SPS revenues from all sources, of which State Historic Sites are only a part, average about $5.5 million annually.

[13] The annual budget for the 50 state-owned historic sites under NJDEP stewardship is included in the annual budget of the State Park Service, which includes the Office of Historic Sites. The administration of each Historic Site is assigned to a State Park or State Forest, and accordingly the budget for a particular HS is contained within that for the corresponding State Park or Forest.

While historic site conservation can be primarily use-oriented, many of the uses would be expected to have little or no effect on the physical integrity of the historic resources. That is, for the most part the uses are non-consumptive: the educational or symbolic value of a historic site or structure can be obtained by merely viewing[14] it, and with proper precautions, continued viewing does not erode the characteristics of the site. Such precautions do, however, require continued upkeep and maintenance of the related physical facilities.

The large economic impact of heritage tourism clearly indicates that many of the State Historic Sites are tourist destinations with great economic potential. This implies a need to determine whether sufficient investments are being made to realize this potential.

The archeological value of the State Historic Sites should be fully assessed via further research, since that value could be substantial in view of the large collection of historic objects and archeological artifacts within the sites and the archeologically significant features of the sites themselves. Only a very simple, indirect and conservative estimate of the archeological value has been attempted in this study.

[14] According to museum experts, sites must be interpreted for the visitor to fully understand its value. Landscapes to a degree, would fall into the category of 'viewing', but historic resources must be interpreted.

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Table 1. Historic Site and Historic Area Attendance

No.	Historic Site	1999	2000	2001	2002	Average	Share	Change/Yr.
	Southern							
1	Somers Mansion	3,285	3,390	3,052	3,004			
2	Hancock House	3,584	3,375	2,919	3,323			
3	Indian King Tavern	3,120	2,781	2,304	1,954			
4	Walt Whitman House	1,504	1,785	2,498	2,652			
5	Batsto Hist. Village	97,156	90,845	100,624	115,871			
	Sub-Total	**108,649**	**102,176**	**111,397**	**126,804**	**112,257**	**24.9%**	**5.3%**
	Central							
6	Rockingham	6,849	6,456	675	0			
7	Grover Cleveland	0	3,532	3,907	3,920			
8	Old Dutch Parsonage	3,897	4,232	4,695	4,923			
9	Wallace House	3,897	4,232	4,695	4,923			
10	Ferry House	15,053	14,374	12,571	12,102			
11	Clark House	5,936	5,064	4,716	8,694			
12	Trenton Battlefield	0	158	6,347	15,418			
	Sub-Total	**35,632**	**38,048**	**37,606**	**49,980**	**40,317**	**9.0%**	**11.9%**
	Northern							
13	Ringwood Manor	76,449	80,339	84,809	88,281			
14	Steuben House	13,602	11,891	9,755	15,205			
	Sub-Total	**90,051**	**92,230**	**94,564**	**103,486**	**95,083**	**21.1%**	**4.7%**
	Shore							
15	Barnegat Lighthouse	88,179	103,605	115,489	106,780			
16	Twinlights	95,391	101,582	86,892	103,358			
17	Boxwood Hall	1,211	1,142	938	885			
18	Craig House	865	793	1,242	1,053			
	Sub-Total	**185,646**	**207,122**	**204,561**	**212,076**	**202,351**	**45.0%**	**4.5%**
	Total	**419,978**	**439,576**	**448,128**	**492,346**	**450,007**	**100.0%**	**5.4%**

Table 1. Historic Site and Historic Area Attendance, cont.

No.	Other Historic Areas	1999	2000	2001	2002	Average	Share	Change/Yr.
	Southern							
19	Cape May Lighthouse*	23,412	26,421	21,524	23,364			
20	Fort Mott SP*	3,929	3,558	4,068	3,769			
	Sub-Total	**27,341**	**29,979**	**25,592**	**27,133**	**27,511**	**5.3%**	**-0.3%**
	Central							
21	D&R Canal SP*	19,672	20,470	21,516	23,349			
22	Waterloo Village*	2,193	2,333	1,717	1,620			
23	Washington Crossing SP*	13,306	10,034	11,224	12,713			
24	Princeton Battlefield SP*	2,912	3,413	2,758	3,290			
	Sub-Total	**38,083**	**36,250**	**37,215**	**40,972**	**38,130**	**7.3%**	**2.5%**
	Northern							
25	High Pt. Monument*	7,724	7,222	7,012	7,447			
26	Skylands Manor*	2,712	2,896	3,074	3,503			
27	Long Pond Ironworks*	2,141	2,244	2,333	2,410			
28	Barrett Farm H.S.*	2,717	2,316	1,738	1,904			
	Sub-Total	**15,294**	**14,678**	**14,157**	**15,264**	**14,848**	**2.9%**	**-0.1%**
	Shore							
29	Allaire Hist. Village	278,282	270,133	301,520	359,449			
30	Double Trouble Hist. Village*	1,191	791	650	657			
31	Liberty SP*	128,219	129,791	134,476	108,406			
32	Monmouth Battlefield SP*	10,621	11,129	12,423	10,103			
	Sub-Total	**418,313**	**411,844**	**449,069**	**478,615**	**439,460**	**84.5%**	**4.6%**
	Total, Historic Areas	**499,031**	**492,751**	**526,033**	**561,984**	**519,950**	**100.0%**	**4.0%**
	Total, Historic Sites	419,978	439,576	448,128	492,346	450,007		5.4%
	Grand Total	**919,009**	**932,327**	**974,161**	**1,054,330**	**969,957**		**4.7%**

Source of Basic Data: *Attendance Report, Fiscal Year 2002, New Jersey State Park Service (NJSPS)*

Note: ** Estimated. Most historic areas do not have separate attendance data. Visitors to such areas are estimated here at 3% of the total number of visitors to the state parks within which such sites are located based on an earlier study of New Jersey heritage tourism conducted by the Rutgers University Center for Urban Policy Research. See Report of the Task Force on New Jersey History, Volume III, June 1997, chapter 4.*

Table 2. List of New Jersey's State-owned Historic Sites and Historic Areas

No.	Name	No.	Name
1	Absecon Lighthouse*	26	Long Pond Ironworks SP
2	Allaire Village	27	Lusscroft Farm*
3	Atsion Village*	28	Metlar-Bodine House*
4	Barnegat Lighthouse	29	Monmouth Battlefield SP
5	Barrett Farm	30	Monocacy Battle Monument*
6	Batsto Village	31	Morris Canal*
7	Boxwood Hall	32	Old Dutch Parsonage
8	Cape May Point Lighthouse	33	Prallsville Mills*
9	Carranza Memorial*	34	Princeton Battle Monument*
10	Clarke House	35	Princeton Battlefield SP
11	Craig House	36	Proprietary House
12	Central Railroad of NJ Terminal*	37	Ringwood Manor
13	Delaware & Raritan Canal SP	38	Rockingham
14	Double Trouble Village	39	Skylands Manor
15	Edison Memorial Tower & Museum*	40	Somers Mansion
16	Fort Mott SP	41	Steuben House
17	Grover Cleveland Birthplace	42	Trenton Battle Monument
18	Hancock House	43	Twin Lights
19	Hermitage*	44	Veterans of All Wars Memorial*
20	High Point Monument	45	Wallace House
21	Indian King Tavern	46	Walt Whitman House
22	John Marshall House*	47	Washington Crossing SP
23	Johnson Ferry House	48	Waterloo Village
24	Keen's Mill*	49	Wawayanda Furnace*
25	Lawrence House*	50	Whitesbog Village*

Source of Data: *Office of Historic Sites, NJ Div. of Parks and Forestry, March 2004.*

Note: **These 18 sites are not included in Table 1. Most of these sites are leased to non-profit organizations and one is located outside NJ (Monocacy in Maryland). Attendance data were not reported for these sites/structures by the Division of Parks and Forestry.*

Table 3. Economic Impact of Heritage Tourism in State Historic Sites

		State Fiscal Impact	Total Money Generated
A) No. of Annual Visitors to Historic Sites	970,207		
B) Avg. Expenditure per Trip, 2001$	$55.51		
C) Avg. Expenditure per Trip, 2003$	$67.37		
D) Est. Annual Visitor Expenditures (A x C)	$ 65,362,903		
E) Indirect and Induced Sales Multiplier	2.0		
F) Increased Sales from HS Visitor Expd (D x E)	$ 130,725,806		$ 130,725,806
G) Sales Tax Rate	6.0%		
H) Sales Tax Revenue (F x G)	$ 7,843,548	$ 7,843,548	$ 7,843,548
I) Portion of Sales Subj to Income Tax	30.0%		
J) State Income Tax Rate	2.5%		
K) Income Tax Revenue (F x I x J)	$ 980,444	$ 980,444	
L) Job Multiplier (new jobs created per $MM)	30		
M) Increased Sales (E) in Million $	$ 130.7		
N) Jobs Created from Increased Sales (L x M)	**3,922**		
O) Annual Salary per New Employee (2003$)	$ 37,747		
P) Salaries from New Jobs (N x O)	$ 148,034,308		$ 148,034,308
Q) Income Tax on New Job Salaries (J x P)	$ 3,700,858	$ 3,700,858	
R) Total Money Generated		**$ 12,524,850**	**$ 286,603,663**
S) Present Value at 5% over 25 yrs		**$ 176,524,536**	**$4,039,376,133**

Sources and Notes:

a) NJ State Park Service, Attendance Report Fiscal Year 2002, March 2003 for visitor data.

b) Average expenditure per trip adapted from 1997 Center for Urban Policy Research, Rutgers University study "Economic Impact of Historic Preservation" commissioned by the New Jersey Task Force on History.

c) Indirect sales multiplier is usually between 1.2 to 2.8 in the U.S., varying with the complexity of the economy. For this analysis, 2.0 was chosen as the midpoint of this range.

d) Jobs multiplier varies by industry, ranging from 10 to 50 jobs per million dollars of sales in the U.S. tourism industry. For this analysis, 30 was chosen as the midpoint of this range.

e) Salaries for new jobs based on $35,963 (in '01 $) per employee per year. The figure is the median salary for all employees of NJ employers based on U.S. Census Bureau data on biweekly payrolls as of March 12, 2001; earnings for persons not classified as "employees" are not included, e.g., sole proprietors, partnerships, etc.

f) 2003 $ calculated using average annual inflation rate, 1993- 2003 (Urban, All-Item CPI): 2.45%

g) PV: 5% discount rate, 25 years

Table 4. Number of Historic Sites, Green Acres Open Space Values, and Home Property Values by County

County	State HS*	Municipal & Private HS	Federal HS	Total HS	Open Space Acq'n Cost Per Acre ($)	Median Home Value in 2000 ($)
Atlantic	3	41	1	45	1,012	122,000
Bergen	8	265	0	273	25,176	250,300
Burlington	8	75	4	87	3,452	137,400
Camden	3	77	1	81	1,096	111,200
Cape May	2	33	1	36	2,319	137,600
Cumberland	1	23	0	24	1,366	91,200
Essex	13	193	2	208	38,371	208,400
Gloucester	1	36	0	37	1,731	120,100
Hudson	2	51	1	54	0	150,300
Hunterdon	8	64	1	73	7,363	245,000
Mercer	16	80	0	96	10,812	147,400
Middlesex	9	56	1	66	12,944	168,500
Monmouth	7	75	6	88	5,433	203,100
Morris	6	122	3	131	3,178	257,400
Ocean	4	24	1	29	1,915	131,300
Passaic	9	27	0	36	5,436	190,600
Salem	3	13	4	20	1,696	105,200
Somerset	11	38	1	50	7,734	235,000
Sussex	3	28	8	39	3,504	157,700
Union	4	53	1	58	0	188,800
Warren	4	29	2	35	4,033	155,500
Total or Average	**125**	**1,403**	**38**	**1,566**	**3,128**	

Data Sources and Notes:

a) National Register of Historic Places, National Park Service (NPS), Washington, D.C., website accessed 3/25/04

b) NJDEP Green Acres Program, Open Space Acquisition Values (January 1999 to December 2003)

c) Median Home Values (owner-occupied) for year 2000 by County and State: U.S. Census Bureau

** Includes all sites, structures and monuments listed as "state-owned" in the NPS National Register of Historic Places.*
The number of NJDEP-administered state-owned historic places (50) is a subset of the total listed by NPS.

Table 5. Correlation of Historic Site Categories with Open Space Values and Home Property Values*

	vs. Home Property Value	vs. Open Space Value
No. of State HS by County	0.528	0.654
No. of Local/Private HS by County	0.577	0.794
Total No. of HS by County	0.597	0.811

***Note**: *Correlation coefficients calculated from data in Table 4 above.*

Table 6. Historic Site Land Values Based on Green Acres Acquisition Costs

Region/ County	HS under DEP*	Area (acres)	Green Acres cost/acre ($)	Estimated Land Value ($)
North Central/Gateway				
Bergen	3	130.2	25,175	3,278,792
Essex	2	125.9	38,370	4,831,167
Hudson	2	458.6	3,128	1,434,501
Middlesex	4	102.3	12,944	1,324,689
Passaic	3	1,786.8	5,436	9,713,257
Union	1	0.4	3,128	1,251
Sub-Total or Avg.	**15**	**2,604.3**	**7,904**	**20,583,656**
Skyland/Highland				
Hunterdon	3	108.5	7,363	799,114
Morris	0	0.0	3,178	0
Somerset	4	131.2	7,734	1,015,010
Sussex	7	12,254.6	3,504	42,940,118
Warren	1	123.6	4,033	498,479
Sub-Total or Avg.	**15**	**12,618.0**	**3,586**	**45,252,721**
South Central/Delaware				
Burlington	5	4,790.3	3,452	16,535,943
Camden	2	0.3	1,096	375
Gloucester	0	0.0	1,731	0
Mercer	7	1,943.2	10,812	21,009,878
Salem	2	104.7	1,696	177,546
Sub-Total or Avg.	**16**	**6,838.5**	**5,516**	**37,723,742**
Southern/Shore				
Atlantic	2	3.8	1,012	3,882
Cape May	1	3.6	2,319	8,251
Cumberland	0	0.0	1,366	0
Monmouth	4	2,164.0	2,884	6,241,057
Ocean	3	1,593.2	1,915	3,051,035
Sub-Total or Avg.	**10**	**3,764.7**	**2,471**	**9,304,225**
Total or Average	**49**	**25,825.4**	**3,128**	**112,870,652**

Sources and Notes

a) Green Acres Program Data on Land Acquisition Costs by County, 1999-2003.

b) New Jersey historic sites that are state-owned and administered by NJDEP; excludes Monocacy Battle Monument located in Maryland; sub-totals will not add to totals since 2 sites are located in several counties.

c) Hudson and Union counties had no Green Acres acquisition during 1999- 2003 so the state average of $3,128 was applied for those counties.

d) Cumberland, Gloucester, and Morris counties do not have state-owned, NJDEP-administered historic sites located within their boundaries.

e) Two historic sites are located in several counties, so for calculation purposes the acreages of these sites were assumed to be divided equally among the counties concerned. They are:

1) The Delaware & Raritan Canal State Pk. (located in Somerset, Hunterdon, Mercer & Middlesex counties)

2) The Morris Canal (located in Warren, Sussex, Essex, Bergen and Hudson counties).

Table 7. Economic Effects of Agency Budget/ Expenditures for Historic Sites

		Fiscal Impact	Total Money Generated
A) Average Annual Agency Budget Expenditures, in $	1,819,581		
B) Average Annual Agency Budget Expenditures in 2003 $	2,103,988		
C) Indirect Sales Multiplier	2.0		
D) Increased Sales Benefit from Agency Budget Expenditures (B x C), in $	4,207,975		4,207,975
E) Retail Sales Tax	6.0%		
F) Sales Tax Revenue (D x E), in $	252,479	252,479	252,479
G) Portion of Sales Subject to Income Tax	30%		
H) State Income Tax Rate	2.50%		
I) Income Tax Revenue, in $ (D x G x H)	31,560	31,560	
G) Increased Sales in million $	4.2		
H) Jobs Multiplier	30.0		
I) New Jobs from Increased Sales Benefit (G x H)	**126.2**		
J) Annual Salary Per New Job, in 2003$	37,747		
K) Salaries for New Jobs (I x J), in $	4,765,124		4,765,124
L) Income Tax Rate	2.50%		
M) Income Tax on New Job Salaries (K x L), in $	119,128	119,128	
N) Totals		**$403,166**	**$9,225,578**
O) Present Value at 5% over 25 years		**$5,682,205**	**$130,024,781**

Notes and Sources:

a) No separate budget/expenditure data were available for State Historic Sites except salary figures for 1999 to 2003 (see Table 10).
Annual average agency expenditures estimated from average of annual salaries and inferred share of operating and maintenance budget.
The average share of personnel expenses (salaries) in the State Park Service operating budget from 1999 to 2003 was 63%. From this, we infer that 37% was the average share of non-personnel expenses during the same period.

b) 2003 $ calculated using average annual inflation rate, 1993- 2003 (Urban, All-Item CPI): 2.45%.

c) Indirect sales multiplier is usually between 1.2 to 2.8 in the U.S., varying with the complexity of the economy. Jobs multiplier varies by industry, ranging from 10 to 50 jobs per million dollars of sales in the U.S. tourism industry.

d) Salaries for new jobs based on $35,963 (in '01 $) per employee per year. The figure is the median salary for all employees of NJ employers based on U.S. Census Bureau data on biweekly payrolls as of March 12, 2001; earnings for persons not classified as "employees" are excluded, e.g., sole proprietors, partnerships, etc.

Table 8. Economic Effects of Capital Expenditures for Historic Sites

		Fiscal Impact	Total Money Generated
A) Average Annual Capital Expenditures (1997 CURP Survey), in $	146,206		
B) Average Annual Capital Expenditures in 2003$	169,058		
C) Output Multiplier for New Construction	2.25		
D) Additional Sales Benefits Generated, in $ (B x C)	380,382		380,382
E) Sales Tax Rate	6%		
F) Sales Tax Revenue, in $ (D x E)	22,823	22,823	22,823
G) Portion of Sales Subject to Income Tax	30%		
H) State Income Tax Rate	2.50%		
I) Income Tax Revenue, in $ (D x G x H)	2,853	2,853	
J) Temporary Construction Jobs Created	Not Estimated		
K) Additional Benefits Generated in million $	0.4		
L) Employment Multiplier for Construction	30.8		
M) New Permanent Jobs Created (K x L)	**11.7**		
N) Annual Salary Per New Job, in $	37,747		
O) Salaries from New Permanent Jobs Created, in $ (M x N)	442,232		442,232
P) Income Tax Rate	2.50%		
Q) Income Tax Revenue from New Jobs Salaries, in $ (O x H)	11,056	11,056	
R) Totals		**$36,732**	**$845,436**
S) Present Value at 5% over 25 years		**$517,692**	**$11,915,533**

Sources and Notes:

a) Center for Urban Policy Research, Rutgers University, 1997, "Economic Impacts of Historic Preservation", Chapter 6: Profile of, and Direct Effects from, New Jersey Historic Sites and Organizations [expenditures and revenues, pp 113 to116]. For public respondents in CUPR capital expenditure survey, average was $146,206 & median $42,500; survey total was $2,339,300.

b) 2003 $ calculated using average annual inflation rate, 1993- 2003 (Urban, All-Item CPI): 2.45%.

c) Multipliers adapted from Shaufelberger, J. E. 1998. Study of the Economic Impact of the Construction Industry in Washington State, Department of Construction Management, University of Washington.

Table 9. Willingness to Pay (WTP) for Historic/Archeological Aspect of State Park and Forest Management

A) WTP from British Studies [$/household/yr, non-user category]	$	2.22
B) NJ Households (2001)		3,064,645
C) Aggregate WTP ($/yr), [A x B]		6,803,512
D) Aggregate WTP in 2003$/yr	$	8,257,125
E) **Present Value** [5% discount rate, 25 years]		**116,375,460**

Sources and Notes

a) WTP value for non-user category (21.16 pounds ~$37.035) from Garrod and Wills, 1995, "Valuing the Benefits of the South Downs Environmentally Sensitive Area (ESA)", Journal of Agricultural Economics 46(2): 160-173. The study estimated average annual WTP per household for three categories of ESA visitor (never visited, previously visited, visited in the current year) with 'never visited' = non-user.

*b)The contribution of historic/archeological management was derived from Hanley, N. et al.1998 "Contingent Valuation versus Choice Experiments: Estimating the Benefits of Environmentally Sensitive Areas in Scotland" Journal of Agricultural Economics 49(1): 1-15.The study indicated that 6% of total household WTP for ESA management was attributable to archeological site conservation. This percentage was used to calculate the value of **A** above.*

c) Estimated NJ number of households as of 7/1/01 from US Census Bureau website.

d) 2003 $ calculated using average annual inflation rate, 1993- 2003 (Urban, All-Item CPI): 2.45%.

Table 10. NJ State Park Service Personnel Budget for Historic Sites (HS)

Year	Salaries	No. of Staff
1999	927,244	33
2000	1,117,098	33
2001	1,202,416	34
2002	1,277,446	34
2003	1,207,475	33
Total	**5,731,679**	
Average	**1,146,336**	
Annual change	**6.8%**	

Source: salary data provided by DEP Office of Historic Resources